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UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

FOREST STATISTICS FOR GRANT COUNTY, OREGON

By
Morten J. Lauridsen.

CALIFORNIA FOREST AND RANGE EXPERIMENT STATION
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UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
PACIFIC NORTHWEST FOREST AND RANGE EXPERIMENT STATION

ADDRESS REPLY TO
DIRECTOR
AND REFER TO

424 U. S. COURT HOUSE,
MAIN AND SIXTH STREETS,
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R-NW
Forest Survey
County Statistics

August 5, 1937

99.54
F762P
no. 47

Director,
California Forest Experiment Station,
332 Giannini Hall,
Berkeley, Calif.

Dear Mr. Kotok:

Enclosed is a copy of "Forest Statistics for Grant County, Oregon", one of a series of mimeographed reports presenting results of the inventory phase of the forest survey in eastern Oregon and eastern Washington counties. A copy of the explanatory text, "The Forest Survey of Eastern Oregon and Eastern Washington", was mailed you with the first report of the series and should be referred to for detailed type descriptions and methods of survey procedure.

Previously forest statistics have been released for all counties in western Oregon and western Washington, for Baker, Crook, Deschutes, Harney, Jefferson, Klamath, Lake, Morrow, Umatilla, Wallowa, Wasco, and Wheeler Counties in eastern Oregon, and for Asotin, Chelan, Columbia, Ferry, Garfield, Kittitas, Klickitat, Okanogan, Walla Walla, and Yakima Counties in eastern Washington. Additional copies of these reports are available for distribution.

Very truly yours,

THORNTON T. MUNGER, Director

By R. W. Cowlin
Acting

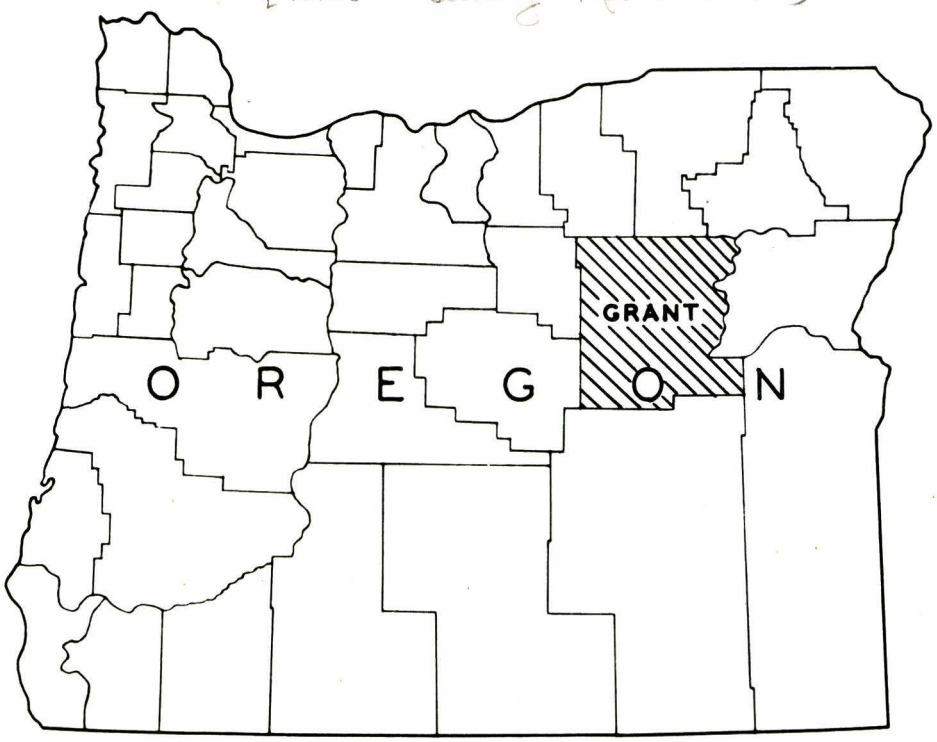
Enclosure

CALIFORNIA FOREST & RANGE EXPERIMENT STATION
330 GIANNINI HALL, UNIVERSITY OF CALIFORNIA
BERKELEY, CALIFORNIA

FOREST STATISTICS
FOR
GRANT COUNTY, OREGON

FROM THE INVENTORY PHASE OF THE FOREST SURVEY

[Forest Survey report no. 47]



U. S. DEPARTMENT OF AGRICULTURE FOREST SERVICE
PACIFIC NORTHWEST FOREST EXPERIMENT STATION
THORNTON T. MUNGER, DIRECTOR

H. J. ANDREWS, IN CHARGE OF FOREST SURVEY R. W. COWLIN, ASSISTANT
WALTER E. PELTO, IN CHARGE OF FIELD AND OFFICE WORK
IN GRANT COUNTY

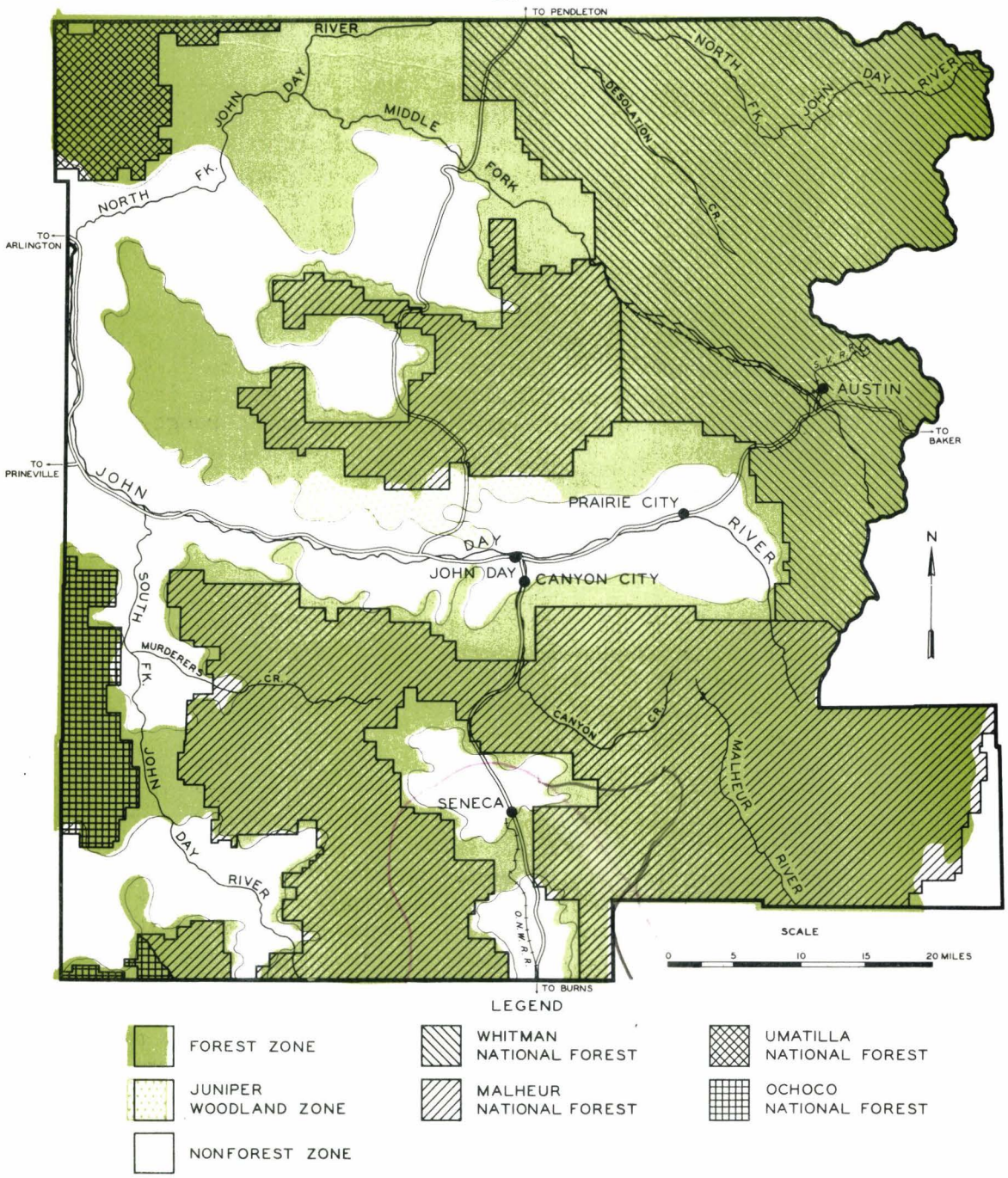
PORTLAND, OREGON AUGUST 5, 1937

CALIFORNIA FOREST & RANGE EXPERIMENT STATION
330 GIANNINI HALL, UNIVERSITY OF CALIFORNIA
BERKELEY, CALIFORNIA

FIGURE 1

OUTLINE MAP
OF
GRANT COUNTY, OREGON

1937



LEGEND

FOREST ZONE	WHITMAN NATIONAL FOREST	UMATILLA NATIONAL FOREST
JUNIPER WOODLAND ZONE	MALHEUR NATIONAL FOREST	OCHOCO NATIONAL FOREST
NONFOREST ZONE		

FOREST STATISTICS FOR GRANT COUNTY, OREGON

By Morten J. Lauridsen[1/]

The forests of Grant County, Oregon, were inventoried in 1935 and 1936 by the Forest Service as a part of a Nation-wide survey of the forest resources. Some of the data obtained in this inventory are presented in this preliminary report; expressed numerically in four tables and graphically in four figures.[2/] The methods of the survey and detailed definitions of the forest types are contained in "The Forest Survey of Eastern Oregon and Eastern Washington".[3/]

Location and Description of County

Grant County is located on the western slopes of the Blue Mountains of northeastern Oregon. It is roughly rectangular in shape extending approximately 65 miles west from the main range of the Blue Mountains and has an approximate length of 72 miles (figure 1). According to the data compiled by the Forest Survey the county has a total land area of 2,891,430 acres and is comparable in size to the State of Connecticut.

1/ THE FIELD AND OFFICE WORK OF THE FOREST SURVEY OF GRANT COUNTY WAS DONE BY WALTER E. PELTO, M. J. LAURIDSEN, H. M. WOLFE, P. D. KEMP, G. H. JACKSON, P. A. BRIEGLEB, W. IRWIN, A. W. HODGMAN, W. E. SANKELA, H. H. ARMSTRONG, B. P. BENNETT, C. E. BROWN, MARION BECQUET, GRACE FREDRICKSEN, H. A. DE RICE, C. L. DE WOLFE, A. E. MORE, AND R. S. STEADMAN.

2/ OREGON AND WASHINGTON WERE DIVIDED FOR PURPOSES OF THE SURVEY INTO TWO REGIONS, (1) THE DOUGLAS FIR REGION, CONSISTING OF THAT PART OF BOTH STATES WEST OF THE SUMMIT OF THE CASCADE RANGE, AND (2) EASTERN OREGON AND EASTERN WASHINGTON, THAT PART OF BOTH STATES EAST OF THE SUMMIT OF THE CASCADE RANGE. EACH REGION WAS DIVIDED INTO FOREST SURVEY UNITS COMPOSED OF ONE OR MORE COUNTIES. AT A LATER DATE A REPORT WILL BE ISSUED FOR EACH SURVEY UNIT PRESENTING A TEXTUAL DESCRIPTION OF THE UNIT, DETAILED INVENTORY SUMMARIES, AND STATISTICS OF GROWTH AND DEPLETION ANALYZED IN THE LIGHT OF THE INVENTORY. A REGIONAL REPORT WILL ALSO BE ISSUED WHICH WILL PRESENT AND DISCUSS FINDINGS FOR THE REGION AS A WHOLE. THE REGIONAL REPORT WILL INCLUDE AN INTERPRETATION OF THE FOREST SURVEY DATA AS RELATED TO OTHER ECONOMIC DATA AND A COMPREHENSIVE ANALYSIS OF THE REGIONAL FOREST SITUATION FROM BOTH A PHYSICAL AND AN ECONOMIC STANDPOINT.

3/ COPIES OF "THE FOREST SURVEY OF EASTERN OREGON AND EASTERN WASHINGTON" MAY BE HAD ON REQUEST OF DIRECTOR, PACIFIC NORTHWEST FOREST EXPERIMENT STATION, 423 U. S. COURT HOUSE, PORTLAND, OREGON.

The topography of the eastern portion of the county is mountainous and featured by high barren peaks and deep timbered canyons. Toward the west the topography moderates into uneven timbered ridges and open river bottoms. The southern extremity is part of a high, uneven plateau, commonly called the "High Desert", that extends south across Harney County into the State of Nevada. Three spurs of the Blue Mountains traverse the county from east to west and separate the drainage basins of the four forks of the John Day River. These spurs, the Greenhorn, Dixie, and Strawberry Ranges, vary in elevation from 5,000 to 8,600 feet with several of their peaks extending above the upper limits of tree growth. Strawberry Mountain, located directly south of Prairie City, is the county's highest peak and reaches an elevation of 9,600 feet. At the point where the John Day River flows from the county the elevation is about 1,800 feet, which is the lowest in the county.

The John Day is the county's principal river and drains all the region north of the Strawberry Range or approximately 80 percent of the total land area. The southeastern extremity of the county is drained to the south by tributaries of the Malheur River. The south-central part, in the vicinity of Bear Valley, drains into the Silvies River and a small area in the southwestern corner is tributary to the Crooked River.

Climatic conditions within the county vary greatly. At low elevations along the western border a semi-arid condition exists but in the more mountainous section to the northeast the climate is more humid. At Dayville, near the western boundary, the average annual precipitation is about 12 inches, and Olive Lake, in the northeastern portion of the county, has an annual average exceeding 30 inches. The growing season in the semi-arid section ranges from 100 to 150 days. At higher elevations, however, the period between killing frosts varies from 50 to 100 days. This variety in climatic conditions has resulted in the formation of three distinct vegetative zones, namely, the nonforest zone, the juniper woodland zone, and the forest zone (figure 1).

Nonforest Zone

Grant County's nonforest zone consists of an irregularly shaped area in the western portion extending in long fingers up the main water courses, usually at elevations below 3,500 feet. There are also several smaller areas of nonforest land in the county that are completely surrounded by forests. These include Fox Valley, Bear Valley, and Silvies Valley.

Juniper Woodland Zone

Western juniper is found as single trees or in scattered stands throughout a large part of the county, but only along the

John Day River between John Day and Dayville does it occur in types of sufficient extent to form a juniper woodland zone. The trees are short, limby, and of little value except for fence posts and fuel.

Forest Zone

The forest zone of the county occupies about two-thirds of the total land area. From a solid body across the eastern section it extends to the west along the spurs of the Blue Mountains and is roughly outlined by the national forest boundaries.

Forest Types[4/]

The forests of Grant County are predominantly of ponderosa pine. Of the total of 1,820,030 acres of forest land, 71.5 percent is occupied by either pure ponderosa pine types or mixed types in which this species is the most important component. Thirteen percent of the total forest area is occupied by the upper-slope, Douglas fir, and white fir types, 7 percent by lodgepole pine types, and the remainder by noncommercial, juniper, nonrestocked, and hardwood types.

The area of all forest cover types by ownership class is shown in table 2, and the area of the generalized forest types in table 3.

The ponderosa pine types extend from the lower limits of tree growth to elevations from 6,500 to 7,000 feet, depending on exposure, and prevail throughout the county except in the higher mountainous northeastern portion, and on the upper slopes of the Strawberry, Greenhorn, and Dixie spurs of the Blue Mountains. At the lower elevations and on the dryer south and west exposures the types are of pure ponderosa pine; towards the altitudinal limits of this species' range and on more moist north and east slopes Douglas fir, western larch, and white fir are associates.

The upper-slope, Douglas fir, and white fir types are confined largely to the rough northeastern part of the county and to the higher slopes of the mountainous spurs. The upper-slope types are composed usually of a mixture of western larch, Douglas fir, white fir, and lodgepole pine and, at higher elevations, alpine fir and Engelmann spruce. The white fir and Douglas fir types are also usually composed of a mixture, but differ from the upper-slope type in that either white fir or Douglas fir makes up more than 50 or 60 percent, respectively, of the stand.

4/ ONE-INCH-TO-THE-MILE COUNTY TYPE MAPS AND ¼-INCH-TO-THE-MILE LITHOGRAPHED STATE TYPE MAPS HAVE BEEN PREPARED TO SHOW THE LOCATION AND EXTENT OF THE FOREST TYPES. FOR INFORMATION ABOUT THESE MAPS AND HOW TO OBTAIN THEM ADDRESS DIRECTOR, PACIFIC NORTHWEST FOREST EXPERIMENT STATION, 423 U. S. COURT HOUSE, PORTLAND, OREGON.

The lodgepole pine types are intermingled with the upper-slope and subalpine types, principally in the extreme northeastern part of the county and in the vicinity of Strawberry Mountain. Many of the lodgepole pine types are the result of fires, this species seeding in after upper-slope types have been killed.

Saw-Timber Types

Saw-timber types cover 1,473,170 acres, or 80 percent of the total forest land area. Eighty-four percent of this acreage is occupied by either pure or mixed ponderosa pine types, 15 percent by upper-slope types, and the remaining 1 percent by the white fir, Douglas fir, and lodgepole pine types.

The bulk of the ponderosa pine saw-timber types are made up of mature stands, pure in composition or nearly so, and averaging from 10 to 14 thousand board feet per acre. Heavier stands occur in parts of the southern half of the forest zone and lighter stands are to be found in the northwestern part of the county and along the lower fringe of the forest zone. In general the quality of the ponderosa pine is good, comparing favorably with that found throughout central and northeastern Oregon.

The timber in the upper-slope, Douglas fir, and white fir saw-timber types is usually of poor quality. The Douglas fir is sound but short and limby; the white fir is very defective; and the western larch, although of good form, frequently contains wind shake.

There is only a small acreage of lodgepole pine type of saw-timber size in the county.

Immature Types

Immature ponderosa pine types cover a total of 138,710 acres or approximately 8 percent of the forest land area. On 71 percent of this acreage the original stand was logged and on the remaining 29 percent it was depleted by either fire or the western pine beetle (Dendroctonus brevicomis). Most of the areas deforested by fire and beetle infestations are small in extent and are mainly along the fringe of the forest zone. Pine beetle infestations have reached the epidemic stage in recent years only in the southwestern part of the county. Immature stands of Douglas fir and upper-slope mixture types are found in small scattered areas throughout the county, the largest tract being located near Fields' Peak.

Nonrestocked Burns and Cut-Over Areas

Fires on Widow's Creek and Wall Creek have resulted in the largest areas of nonrestocked burns, totaling approximately 3,520 acres. These burns are fairly recent and will probably restock within the next decade.

Nonstocked cut-over areas within the county total only 745 acres and are principally located in the cut-over region in the vicinity of Austin.

Noncommercial Forest Types

A total of 85,115 acres of the forest land was classified by the survey as noncommercial. This acreage is about equally divided between areas at the upper limits of forest growth where the trees are usually unmerchantable because of poor form and small size and areas within the range of commercial timber which are too rocky, steep, or sterile to produce a stand of commercial value. The former type is principally found along the summits of the Blue Mountains and the latter at lower elevations in various parts of the county.

Productive Capacity of Forest Land

In the survey the forest land in the county was classified by site quality, or productive capacity. This classification is shown in table 4. Approximately 83 percent of the total area of 1,577,955 acres now supporting a coniferous forest growth of commercial importance was rated according to the ponderosa pine site classification. Seventy-nine percent of the area so rated is in site quality class IV, the average pine site for eastern Oregon and eastern Washington; the remainder is practically all site quality class V, the next lowest class. The remainder of the commercial forest land was rated according to the Douglas fir site classification and nearly all found to be of site quality class V, the least productive of the Douglas fir sites.

Saw-Timber Volume

Grant County ranks second among the counties of eastern Oregon and eastern Washington in volume of merchantable timber. Approximately 80 percent of the total volume of 12.2 billion board feet is ponderosa pine, 9 percent Douglas fir, 6 percent western larch, 4 percent white fir, and the remainder less important species. Table 1 and figure 2 show the volume of merchantable timber by species and ownership class.

Forest Ownership

The forest lands of Grant County are principally in public ownership. Approximately 71 percent of the total forest land area and 69 percent of the ponderosa pine volume is in national forest ownership, 25 percent of the forest land and 29 percent of the ponderosa pine volume is privately owned, and the remainder is divided among State, county, and public domain ownerships. The ownership of saw-timber volume and forest land is shown graphically in figures 2 and 3.

The forest land in national forest ownership is divided among the Malheur, Whitman, Umatilla, and Ochoco National Forests (figure 1).

History and Economic Development

Early History

The history of that part of Oregon now within the boundary of Grant County began with the discovery of gold on Canyon Creek in the spring of 1862. Grant County was organized two years later out of an area taken from Wasco and Umatilla Counties and was named for General Ulysses S. Grant. At that time the county extended from the Umatilla County line to the Nevada line and was the largest in Oregon. However, in later years another subdivision was made and Grant County was reduced to its present limits.

Transportation

Highway development in the county consists of approximately 1,000 miles of main and secondary roads. Two State highways traverse the county; one, the John Day, crosses from east to west through the central portion; and the other, the Pendleton-John Day, and its southern extension, the Yellowstone Cutoff, provide outlets to the north and south. Secondary roads lead into all but the more mountainous portions of the county.

A rail outlet to the east to Baker, on the main line of the Union Pacific, is provided by the Sumpter Valley, a narrow gage railroad that has its railhead a few miles southwest of Austin. Although a common carrier, this railroad is used primarily for the transportation of lumber from the Oregon Lumber Company sawmill at Bates to Baker. The Oregon-Northwestern Railroad, which has its railhead at Seneca, provides an outlet to the south to Burns where connections are made with a branch line of the Union Pacific. This railroad is standard gage and a common carrier. It is used mainly for the transportation of logs to the Edward Hines Lumber Company sawmill near Burns. The Oregon Lumber Company has constructed a logging railroad down the Middle Fork of the John Day River for the transportation of logs to the mill at Bates.

Population Distribution

Grant County is sparsely populated, having only 1.3 inhabitants per square mile. According to the Bureau of the Census the population in 1930 was 5,940, an increase of 8 percent over the 1920 figure. Of this total, 2,840 inhabitants were classified as rural-farm and 3,100 as rural-nonfarm. The county seat is located at Canyon City, the first town to be settled in the county. John Day and Prairie City, both with populations of less than 500, are the

trading centers for the south and central parts of the county. The principal trading centers of the northern portion are Monument, Long Creek, and Granite.

Mining Development

The discovery of gold led to a rush into the Canyon Creek district that brought the first settlers into the upper John Day region and within a year several thousand miners were at work in the streams and gulches of the surrounding country. Joaquin Miller, the renowned poet, was one of the early settlers and served as one of the first Grant County judges. Gold was found in considerable quantities by the early miners but as the easily accessible ground was worked out production gradually decreased. New discoveries were made on the North Fork and Middle Fork of the John Day River and mining became general over the northeastern section of the county. In 1916 gold dredging was introduced on the John Day River near John Day. In 1936 there were two dredges in operation in the county, one near Prairie City and one near Galena. Dredging along the rivers has resulted in the destruction of fertile crop lands on which a large amount of hay was produced for the winter feeding of livestock. In the vicinity of Granite there are a number of active placer and quartz mines . Recently a quartz mine near Olive Lake, employing about 70 men, has been shipping several truck loads of gold-bearing concentrates a day to Baker. The North Fork of the John Day River and its principal tributary, Desolation Creek, are the sites for many placer claims, some of which have been located recently. Although deposits of silver, copper, cobalt, iron, nickel, sandstone, and limestone have been reported, very little has been done to develop these.

Agricultural Development

Although gold mining brought about the first development in the county, agriculture soon supplanted it as the leading industry and today the principal source of income in the county is from the raising of livestock. According to the Bureau of the Census report for 1930 the total agricultural income was approximately two and one-half million dollars, of which more than two million dollars was derived from the sale of livestock and livestock products. The report gave the total area in farms as 899,329 acres or approximately 31 percent of the total county area. There were 632 farms, including 258 stock ranches, with an average size of 1,423 acres. Only 7 percent of the total farm acreage was cultivated, the remainder was grazing land. The arable lands are located principally along the John Day River and on level benches above the Middle Fork of the John Day River. Irrigation is carried on in some areas but the projects are small and individually owned. Most of the cultivated land is used for the production of hay and the crop, made up of about equal amounts of timothy, alfalfa, and oat hay, is nearly all consumed locally for winter feeding of livestock.

In 1930 there were 41,218 cattle, 169,761 sheep, and 6,612 horses in the county. In addition to the locally owned sheep, a large number from ranches in neighboring counties are grazed in the national forests in Grant County each summer. The summer range of the cattle is largely in the forest zone at the lower elevations and that of the sheep on the upper slopes and subalpine meadows of the mountainous portion of the county.

Forest Exploitation

Although the forests have played an important role in the economic development of Grant County from the time of the first settlement, by supplying building material, fuel, fence posts, and mine timbers, extensive exploitation of them did not begin until about 1910, following the building of the Sumpter Valley Railroad to Austin. At about this time logging operations in the vicinity of Austin were started in both private and national forest timber; two sales of timber in the Whitman National Forest were made. In 1917 the Oregon Lumber Company built a sawmill at Bates, near Austin, and began logging operations on the Middle Fork of the John Day River. This company has continued to operate in private and national forest timber and recently extended their operations to the main John Day River drainage at the headwaters of Dixie, Dad's, and Davis Creeks.

Approximately 67,000 acres of timber have been logged in the vicinity of Austin. Some of the first private timber to be logged was practically clear cut and a residual stand of less than 1 thousand board feet per acre left. However, natural restocking has taken place on these areas and, at present, most of them are either medium or well stocked.5/ All of the national forest timber and, recently, the private timber has been selectively logged and a residual stand of from 1 to 4 thousand board feet per acre left.

Exploitation began in the southern portion of the county in the vicinity of Seneca in 1929 when the Edward Hines Lumber Company started logging in both private and national forest timber. Logs from this operation are transported to the company's mill at Hines, near Burns in Harney County, over the Oregon-Northwestern Railroad. The area is part of a high plateau on which the topography is gentle and rolling, making logging conditions excellent.

Most of the private timber was formerly clear cut and after cutting the area was burned over, resulting in it being generally in a poor or medium-stocked condition. An area of approximately

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5/ REPRODUCTION INCLUDES ALL TREES LESS THAN 11.6 INCHES IN D.B.H., I.E., POLES, SAPLINGS, AND SEEDLINGS. CLASSIFICATION IN TERMS OF NORMAL STOCKING IS AS FOLLOWS: WELL STOCKED, 70 TO 100 PERCENT; MEDIUM STOCKED, 40 TO 69 PERCENT; POORLY STOCKED, 10 TO 39 PERCENT; NONSTOCKED, LESS THAN 10 PERCENT.

10,000 acres of this cut-over land is now owned by stockmen who are attempting to convert it into pasture. Logging in the national forest timber is on a sustained-yield basis, in which the volume of the residual stand is approximately 60 percent of the original stand. Due to logging methods used in this type of operation, the advance ponderosa pine reproduction is not greatly injured and the stocking is generally good. In addition to the large sawmill at Bates there are 6 or 7 small sawmills located in the county, but for the most part they operate intermittently and their total output is small. Practically all of the products of these mills are used locally.

The forest zone of Grant County may be roughly divided into five operating units determined by their accessibility to the centers of log consumption. The northwestern portion, roughly outlined by the Umatilla National Forest boundary, may be considered as part of a unit that includes timber in northeastern Wheeler and southern Morrow Counties. The timber in this unit will probably find an outlet to the northwest to a branch line of the Union Pacific Railroad.

The portion of the forest zone occupying the North Fork of the John Day River drainage and the area north of the Greenhorn Range may be considered as part of a unit that will have a natural outlet for its timber to the north. The timber in this unit is of no great commercial importance at present since it is only fair in quality and located in a rugged inaccessible country.

All of the forest zone lying between the Greenhorn and Strawberry Ranges, which includes the drainages of the Middle and Main Forks of the John Day River, will probably have an outlet to the east over the Sumpter Valley Railroad.

The Bear Valley operating unit includes all of the timber east of the South Fork of the John Day River and south of the Strawberry Range. This unit is made up of the areas drained by the Malheur and Silvies Rivers and the eastern tributaries of the South Fork of the John Day River. The outlet of the timber in this unit will probably be to the south to the large sawmill near Burns.

The forest area west of the South Fork of the John Day River is part of a unit extending from the Crooked River in northeastern Crook County. The timber on this area is of fair quality but is located on rough topography and not commercially important at present. The natural outlet for this tract will be to the west down the Crooked River.

Under proper management all of these units can be placed on a sustained-yield basis and the utilization of their forest resources will contribute further to the county's development and its economic welfare.

FOREST STATISTICS FOR GRANT COUNTY, OREGON
FROM INVENTORY PHASE OF FOREST SURVEY

TABLE I. VOLUME OF TIMBER BY SPECIES AND OWNERSHIP CLASS
DATA CORRECTED TO JANUARY 1, 1937

TREES 12" AND MORE IN D.B.H.
THOUSANDS OF BOARD FEET, LOG SCALE, SCRIBNER RULE

SURVEY SYMBOL	SPECIES[1]	PRIVATE	STATE, AVAILABLE FOR CUTTING	COUNTY	FEDERAL: PUBLIC DOMAIN	FEDERAL: NATIONAL FOREST: AVAILABLE FOR CUTTING	FEDERAL: NATIONAL FOREST: RESERVED FROM CUTTING	TOTAL
Y	PONDEROSA PINE	2,779,445	19,020	59,412	171,630	6,673,816		9,703,323
W	WESTERN WHITE PINE	31				2,393	2	2,426
LP	LODGEPOLE PINE	2,481			38	28,782	1	31,302
DF	DOUGLAS FIR	174,205	1,433	5,306	9,886	907,742	60	1,098,632
WF	WHITE FIR	61,273	749	2,214	2,369	482,969	25	549,599
AF	ALPINE FIR	5,147		20		18,127	3	23,297
WL	WESTERN LARCH	80,539	243	2,290	1,928	623,461	166	708,627
ES	ENGELMANN SPRUCE	7,793		38	5	56,004	16	63,856
BC	NORTHERN BLACK COTTONWOOD	2,466	5		105	25		2,601
	TOTAL	3,113,380	21,450	69,280	185,961	8,793,319	273	12,183,663

VOLUME OF CORDWOOD SPECIES
TREES 4" OR MORE IN DIAMETER 1' ABOVE GROUND
CORDS

WJ	WESTERN JUNIPER	10,505	320	30	2,760	10,260		23,875
MM	MOUNTAIN MAHOGANY	515			365	1,480		2,360
ASP	ASPEN	90			40	465		595
BC	NORTHERN BLACK COTTONWOOD	365			20			385
	TOTAL	11,475	320	30	3,185	12,205		27,215

1/ IN ADDITION TO THE SPECIES LISTED WHITEBARK PINE IS KNOWN TO OCCUR IN THIS COUNTY, BUT IN NEGLIGIBLE QUANTITY.

FOREST STATISTICS FOR GRANT COUNTY, OREGON
FROM INVENTORY PHASE OF FOREST SURVEY

TABLE 2. AREA, IN ACRES, OF ALL FOREST COVER TYPES, BY OWNERSHIP CLASS
DATA CORRECTED TO JANUARY 1, 1937

SUR-VEY TYPE NO.	TYPE DEFINITION	PRIVATE	STATE, AVAILABLE FOR CUTTING	COUNTY	FEDERAL			TOTAL
					PUBLIC DOMAIN	NATIONAL FOREST AVAILABLE FOR CUTTING	NATIONAL FOREST RESERVED FROM CUTTING	
	WOODLAND:							
5A	DENSE JUNIPER: JUNIPER OR MOUNTAIN MAHOGANY FORESTS OCCUPYING 10% OR MORE OF THE LAND AREA	11,295	465		1,185	210		13,155
5B	SCATTERED JUNIPER: JUNIPER OR MOUNTAIN MAHOGANY FORESTS OCCUPYING 5 TO 10% OF THE LAND AREA	20,465	555	105	5,790	8,705		35,620
5½	PONDEROSA PINE WOODLAND: SCATTERED STANDS OF MATURE PONDEROSA PINE ON UNFAVORABLE SITES	49,960	920	920	10,090	50,530		112,420
	PONDEROSA PINE: FORESTS CONTAINING 50% OR MORE OF PONDEROSA PINE							
20	PONDEROSA PINE, LARGE: FORESTS CONTAINING 50 TO 80% OF PONDEROSA PINE, MORE THAN 22" DBH	25,660	115	975	2,500	111,210		140,460
20.5	PURE PONDEROSA PINE, LARGE: FORESTS CONTAINING 80% OR MORE OF PONDEROSA PINE, MORE THAN 22" DBH	258,960	2,470	5,825	21,225	547,050		835,530
21	PONDEROSA PINE, SMALL: 12 TO 22" DBH	22,045	230	110	1,630	51,475		75,490
22	PONDEROSA PINE SEEDLINGS, SAPLINGS, AND POLES: LESS THAN 12" DBH	22,555	500	205	1,840	33,865		58,965
	PINE MIXTURE: MIXED FORESTS CONTAINING 20 TO 50% OF PONDEROSA PINE							
27	PINE MIXTURE, LARGE: 12" OR MORE DBH	12,025	140	575	880	61,300		74,920
28	PINE MIXTURE, SMALL: LESS THAN 12" DBH	1,120	125		720	2,290		4,255
	DOUGLAS FIR: FORESTS CONTAINING 60% OR MORE OF DOUGLAS FIR							
7	DOUGLAS FIR, SMALL OLD GROWTH: 22 TO 40" DBH	185		85		4,235		4,505
9A	DOUGLAS FIR, LARGE POLES: 12 TO 20" DBH					275		275
9B	DOUGLAS FIR, SMALL POLES: 6 TO 10" DBH	365	40		510	2,535		3,450
10	DOUGLAS FIR, SEEDLINGS AND SAPLINGS: LESS THAN 6" DBH					150		150
	UPPER-SLOPE MIXTURE: MIXED FORESTS OF WESTERN LARCH, DOUGLAS FIR, ENGELMANN SPRUCE, WHITE FIR, ALPINE FIR, OR LODGEPOLE PINE; OCCASIONALLY OTHER SPECIES							
27½	UPPER-SLOPE MIXTURE, LARGE: 12" OR MORE DBH	16,180	55	215	380	197,430	70	214,330
28½	UPPER-SLOPE MIXTURE, SMALL: LESS THAN 12" DBH	315		5		5,600		5,920
	WHITE FIR: FORESTS CONTAINING 50% OR MORE OF WHITE FIR							
29	WHITE FIR, LARGE: 12" OR MORE DBH	1,210		60		13,675		14,945
30	WHITE FIR, SMALL: LESS THAN 12" DBH					110		110
	LODGEPOLE PINE: FORESTS CONTAINING 50% OR MORE OF LODGEPOLE PINE							
25	LODGEPOLE PINE, LARGE: 12" OR MORE DBH	5				290		295
26	LODGEPOLE PINE, MEDIUM: 6 TO 10" DBH	7,560		80	30	66,530	30	74,230
26A	LODGEPOLE PINE, SMALL: LESS THAN 6" DBH	2,385	15	160	50	54,425		57,035
	HARDWOOD: FORESTS CONTAINING 50% OR MORE OF NORTHERN BLACK COTTONWOOD AND ASPEN							
31.5	HARDWOODS, LARGE: 12" OR MORE DBH	2,240	10		115			2,365
31	HARDWOODS, SMALL: LESS THAN 12" DBH	380			30	60		470
33	SUBALPINE: FORESTS AT UPPER LIMITS OF TREE GROWTH, USUALLY UNMERCHANTABLE	3,515				39,440		42,955
	NONRESTOCKED CUTOVERS: LOGGED AREAS NOT SATISFACTORILY RESTOCKED AND NOT CARRYING A RESIDUAL STAND OF 1 M OR MORE PER ACRE							
35A	CUT SINCE BEGINNING OF 1920	200				335		535
35B	CUT BEFORE 1920	20				280		300
	DEFORESTED AREAS: NONRESTOCKED AREAS DEFORESTED OTHERWISE THAN BY CUTTING							
37	DEFORESTED BURNS	955	180	15	30	4,005		5,185
38	NONCOMMERCIAL ROCKY AREAS	3,940	405	255	5,945	31,615		42,160
	TOTALS FOR FOREST LAND	463,540	6,225	9,590	52,950	1,287,625	100	1,820,030
1,1B & 2	NONFOREST LAND: CULTIVATED, GRASS, SAGEBRUSH, BARRENS, CITIES, UNMEANDERED WATER SURFACES, ETC.	782,550	11,920	1,620	139,835	135,475		1,071,400
	TOTALS FOR COUNTY	1,246,090	18,145	11,210	192,785	1,423,100	100	2,891,430

FOREST STATISTICS FOR GRANT COUNTY, OREGON
FROM INVENTORY PHASE OF FOREST SURVEY

TABLE 3. AREA, IN ACRES, OF GENERALIZED FOREST TYPES, BY OWNERSHIP CLASS
DATA CORRECTED TO JANUARY 1, 1937

TYPE DEFINITION		PRIVATE	STATE, AVAILABLE FOR CUTTING	COUNTY	FEDERAL: PUBLIC DOMAIN	FEDERAL: NATIONAL FOREST AVAILABLE FOR CUTTING	FEDERAL: NATIONAL FOREST RESERVED FROM CUTTING	TOTAL
WOODLAND: JUNIPER								
SURVEY TYPES 5A AND 5B		31,760	1,020	105	6,975	8,915		48,775
HARDWOOD: COTTONWOOD AND ASPEN								
SURVEY TYPES 31.5 AND 31		2,620	10		145	60		2,835
PONDEROSA PINE 12" OR MORE DBH								
SURVEY TYPES 5½, 20, 20.5, 21, AND 27		368,650	3,875	8,405	36,325	821,565		1,238,820
PONDEROSA PINE LESS THAN 12" DBH	ON CUTOVER AREAS	15,015	350	175	1,130	19,795		36,465
SURVEY TYPES 22 AND 28	ON OLD BURNS	8,660	275	30	1,430	16,360		26,755
	TOTAL	23,675	625	205	2,560	36,155		63,220
CONIFERS 12" OR MORE DBH OTHER THAN PONDEROSA								
PINE AND LODGEPOLE PINE								
SURVEY TYPES 7, 9A, 27½, AND 29		17,575	55	360	380	215,615	70	234,055
CONIFERS LESS THAN 12" DBH OTHER THAN PONDEROSA	ON CUTOVER AREAS	20				250		270
PINE AND LODGEPOLE PINE	ON OLD BURNS	660	40	5	510	8,145		9,360
SURVEY TYPES 9B, 10, 28½, AND 30	TOTAL	680	40	5	510	8,395		9,630
LODGEPOLE PINE 12" OR MORE DBH								
SURVEY TYPE 25		5				290		295
LODGEPOLE PINE LESS THAN 12" DBH								
SURVEY TYPES 26 AND 26A		9,945	15	240	80	120,955	30	131,265
NONCOMMERCIAL AREAS								
SURVEY TYPES 33 AND 38		7,455	405	255	5,945	71,055		85,115
NONRESTOCKED CUTOVER AREAS AND DEFORESTED BURNS								
SURVEY TYPES 35A, 35B, AND 37		1,175	180	15	30	4,620		6,020
TOTALS FOR FOREST LAND		463,540	6,225	9,590	52,950	1,287,625	100	1,820,030
NONFOREST LAND								
SURVEY TYPES 1, 1B, AND 2		782,550	11,920	1,620	139,835	135,475		1,071,400
TOTALS FOR COUNTY		1,246,090	18,145	11,210	192,785	1,423,100	100	2,891,430

FOREST STATISTICS FOR GRANT COUNTY, OREGON
FROM INVENTORY PHASE OF FOREST SURVEY

TABLE 4. AREA OF FOREST LAND, BY SITE QUALITY
DATA CORRECTED TO JANUARY 1, 1937

TYPE	SITE QUALITY CLASS[1]		AREA			
			ACRES	PERCENTAGE OF-- CONIFEROUS FOREST LAND CLASSIFIED AS TO SITE QUALITY	PERCENTAGE OF-- TOTAL FOREST LAND[2]	PERCENTAGE OF-- TOTAL AREA OF COUNTY
PONDEROSA PINE, PONDEROSA PINE MIXTURE, AND WHITE FIR	PONDEROSA PINE	III	11,725	0.7	0.6	0.4
		IV	1,035,035	65.6	56.9	35.8
		V	263,690	16.7	14.5	9.1
		VI	1,630	0.1	0.1	0.1
			1,312,080	83.1	72.1	45.4
DOUGLAS FIR AND UPPER-SLOPE MIXTURE	DOUGLAS FIR	IV	12,430	0.8	0.7	0.4
		V	253,445	16.1	13.9	8.8
			265,875	16.9	14.6	9.2
TOTAL			1,577,955	100.0	86.7	54.6
LODGEPOLE PINE[3]			105,250		5.8	3.6
JUNIPER			48,775		2.7	1.7
SUBALPINE[4]			43,055		2.3	1.5
NONCOMMERCIAL ROCKY AREAS			42,160		2.3	1.4
HARDWOOD			2,835		0.2	0.1
TOTAL			242,075		13.3	8.3
GRAND TOTAL			1,820,030		100.0	62.9

1/ THE "SITE QUALITY" OF A FOREST AREA IS ITS RELATIVE PRODUCTIVE CAPACITY, DETERMINED BY CLIMATIC, SOIL, TOPOGRAPHIC, AND OTHER FACTORS. THE INDEX OF SITE QUALITY IS THE AVERAGE HEIGHT OF THE DOMINANT STAND AT THE AGE OF 100 YEARS. SIX SITE QUALITY CLASSES ARE RECOGNIZED FOR PONDEROSA PINE AND FIVE FOR DOUGLAS FIR, CLASS I BEING IN EACH CASE THE HIGHEST. IN THE SURVEY THE PONDEROSA PINE AND DOUGLAS FIR CLASSIFICATIONS, RESPECTIVELY, WERE USED NOT ONLY FOR TYPES OF WHICH THESE SPECIES ARE CHARACTERISTIC COMPONENTS BUT FOR OTHER TYPES FOR WHICH NO SITE QUALITY CLASSIFICATIONS HAVE BEEN DEVELOPED.

2/ THE COUNTY HAS A TOTAL AREA OF 2,891,430 ACRES, OF WHICH 1,820,030 ACRES (62.9 PERCENT) IS FOREST LAND AND 1,071,400 ACRES (37.1 PERCENT) IS NONFOREST LAND.

3/ EXCLUSIVE OF 26,310 ACRES OF LODGEPOLE PINE TYPE AREA WHICH WAS ASSIGNED DOUGLAS FIR SITE QUALITIES.

4/ INCLUDES 100 ACRES OF DEFORESTED BURN.

FOREST STATISTICS FOR GRANT COUNTY, OREGON

FROM INVENTORY PHASE OF FOREST SURVEY

FIGURE 2. DISTRIBUTION OF SAW-TIMBER VOLUME BY SPECIES AND OWNERSHIP CLASS (FROM TABLE 1)

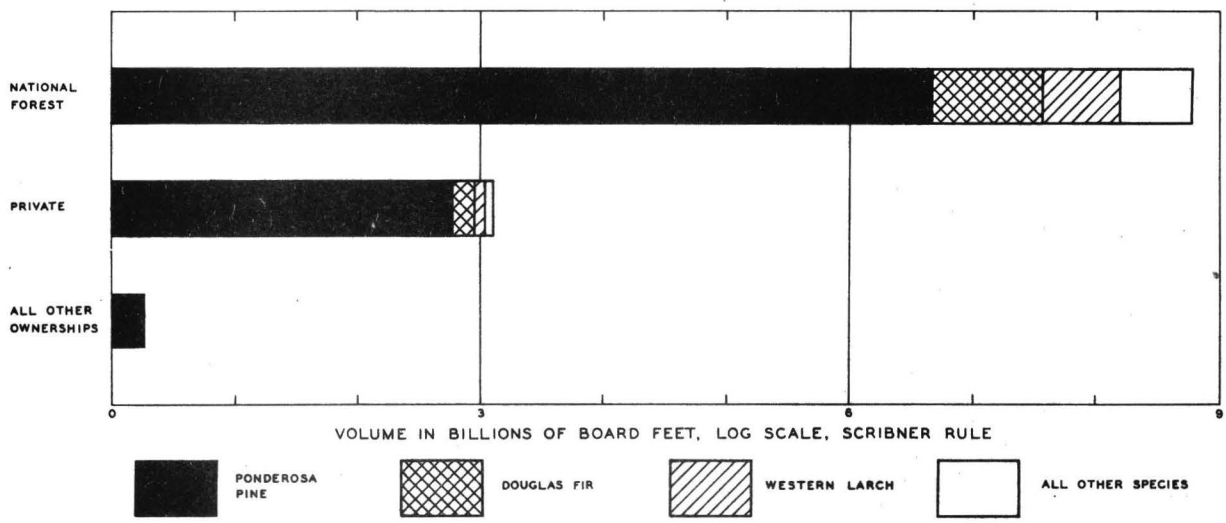

FIGURE 3. OWNERSHIP OF FOREST LAND (FROM TABLE 2)

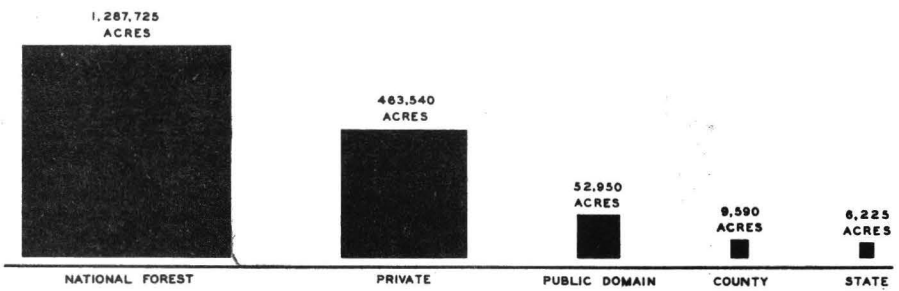

FIGURE 4. DISTRIBUTION OF FOREST LAND BY GENERALIZED TYPES, ALL OWNERSHIP CLASSES (FROM TABLE 3)